

**Amendments to the Claims:**

Claims 38 and 42 have been amended herein. Please note that all claims currently pending and under consideration in the referenced application are shown below. Please enter these claims as amended. This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

1.-37. Canceled

38. (Currently Amended) A column assembly for facilitating substantial removal of at least one constituent of a fluid stream passing through the column assembly, the column assembly comprising:

a column housing defining a chamber and having a column housing inlet and outlet connections in fluid communication with the chamber; and

a composite medium disposed in the chamber, wherein the composite medium comprises a plurality of discrete particles in mutual contact arranged to define a plurality of interstitial regions openings therebetween, each of the interstitial regions comprising at least one void, and each of the plurality of discrete particles comprises:

a porous matrix material substantially comprising a polymer; and

at least one active component supported by the porous matrix material, the at least one active component being selected from the group consisting of:  
crystalline silicotitanate, carbon, and carbamoyl phosphine oxides.

39. (Original) The column assembly as recited in claim 38, wherein the at least one active component comprises octyl (phenyl) N,N-diisobutylcarbamoylmethylphosphine oxide.

40. (Previously presented) The column assembly as recited in claim 38, wherein the porous matrix material substantially comprises polyacrylonitrile.

41. (Original) The column assembly as recited in claim 38, further comprising at least one active component selected from the group consisting of: ion exchangers, extractants, and complexants.

42. (Currently Amended) An ion processing system suitable for facilitating removal of at least one constituent of a fluid stream passing through the ion processing system, the ion processing system comprising:

a column assembly including:

a column housing defining a chamber and having column housing inlet and outlet connections in fluid communication with the chamber; and

a composite medium disposed in the chamber, wherein the composite medium comprises a plurality of discrete particles in mutual contact arranged to define a plurality of interstitial regions openings therebetween, each of the interstitial regions comprising at least one void, and each of the plurality of discrete particles comprises:

a porous matrix material substantially comprising polyacrylonitrile;

and

at least one organic active component supported by the porous matrix material, the at least one organic active component being selected from the group consisting of: crystalline silicotitanate, carbon, and carbamoyl phosphine oxides; and

column inlet and column outlet piping in fluid communication with the column assembly.

43. (Previously presented) The ion processing system as recited in claim 42, wherein the at least one organic active component comprises octyl (phenyl) N,N-diisobutylcarbamoylmethylphosphine oxide.

44. (Original) The ion processing system as recited in claim 42, further comprising at least one inorganic active component.

45. (Previously presented) The ion processing system as recited in claim 44, wherein the at least one inorganic active component substantially comprises crystalline silicotitanate.

46. (Previously presented) The ion processing system as recited in claim 44, wherein the at least one inorganic active component is selected from the group consisting of: ion exchangers, complexants, and extractants.

47. (Original) The ion processing system as recited in claim 42, further comprising at least one active component selected from the group consisting of: ion exchangers, complexants, and extractants.

48. (Original) The ion processing system as recited in claim 42, further comprising at least one mechanical filter in fluid communication with the fluid stream.

49. (Previously presented) The column assembly as recited in claim 38, wherein the discrete particles of the plurality of discrete particles are generally spherical in shape.

50. (Previously presented) The column assembly as recited in claim 38, wherein the discrete particles of the plurality of discrete particles are substantially uniform in size and shape.

51. (Previously presented) The ion processing system as recited in claim 42, wherein the discrete particles of the plurality of discrete particles are generally spherical in shape.

52. (Previously presented) The ion processing system as recited in claim 42, wherein the discrete particles of the plurality of discrete particles are substantially uniform in size and shape.